Rapids Bowl/Dunn Tire:

Site Location and History

Located at 9524 and 9540 Niagara Falls Boulevard (respectively) in the city of Niagara Falls.

Materials present here were brought to the location in the 1960's likely as free fill but without knowledge of their radioactive material content. The material appears to be similar to slag disposed of at the CECOS landfill nearby in a similar time period.

In 1979, the New York State Department of Health (NYSDOH) discovered that stone aggregate used to construct the parking lot contained higher than normal concentrations of naturally occurring radioactive materials. Use of the property as an automobile dealership and the adjacent paved parking lot did not present an immediate hazard either to the workers or the public. However, the property owners were instructed by NYSDOH that any intrusive work performed within impacted areas should only be performed after notifying their department and with proper precaution due to the excessive radioactivity.

Department and Other Agency Investigations

This location has been of concern since its discovery in 1979 by the NYSDOH. NYSDOH investigated the area in September of 2004 during the UST removal, and determined that the concentrations of Thorium-232 are such that they meet the Nuclear Regulatory Commission's definition of source material and subject to possible licensing. This Department has been involved as recently as May of 2007, performing surveys and other investigations to determine the possible extent of the material.

Contaminant(s) of Concern

The materials of concern are likely residuals from Niobium processing. The main radioisotope of concern is Thorium-232 and its associated decay products. Isotopes of lesser concentrations include Uranium-238 and its associated decay products including Radium. The physical nature of this material is that of chunks ranging in size from pebbles to a few inches in diameter.

Nature and Extent of Contamination

Dose rates in and around several areas where the materials are found are such that a member of the public could be exposed at levels greater than allowed by State/NRC regulations. Disposal of these materials would have to occur in a licensed low-level radioactive waste (LLRW) facility. Average concentrations range in the tens to several hundreds of pCi/g of the Uranium and Thorium (Th-232) chain isotopes, with Thorium being the major constituent.

Current estimates place the area of contamination well beyond the parking areas and underneath the two buildings (Dunn Tire and Rapids Bowl), extending many yards (North) beyond the back of the shared parking lot, and laterally beyond either side. This constitutes several acres of contamination.

Recommended Action(s)

As this material is above the threshold for source material (> 0.5% by weight Th-232), and exhibits dose rates that could exceed what is allowed for a member of the public depending on scenario, it is recommended that this material be removed and shipped to either a LLRW facility, or transferred to a licensed facility which can utilize the Thorium content and/or other metals present.

A removal action would first entail a more concise remedial investigation, including a full survey, sampling, and volume estimate. The scope of these actions would be easily determined and streamlined by prior investigations.

Approximate Cost(s)

As this site is not fully characterized, it would be difficult to accurately determine a reasonable cost to remediate. A proper remedial investigation to determine nature and extent of the contamination would likely in the tens to over a hundred thousand dollars in order to accurately estimate impacted volumes of material, and hence transportation and disposal costs, which are a majority of the overall price tag of any radiological remediation.

A reasonable estimate for remediation would likely be in the millions of dollars. However, a proper investigation may in fact lead to the proper identification of potentially responsible parties (PRP's) and possibly cost sharing, etc.. It is suspected that this material is of the same origin as slag buried at the CECOS landfill not far away from the site, which was a by product of Union Carbide Niobium processing.